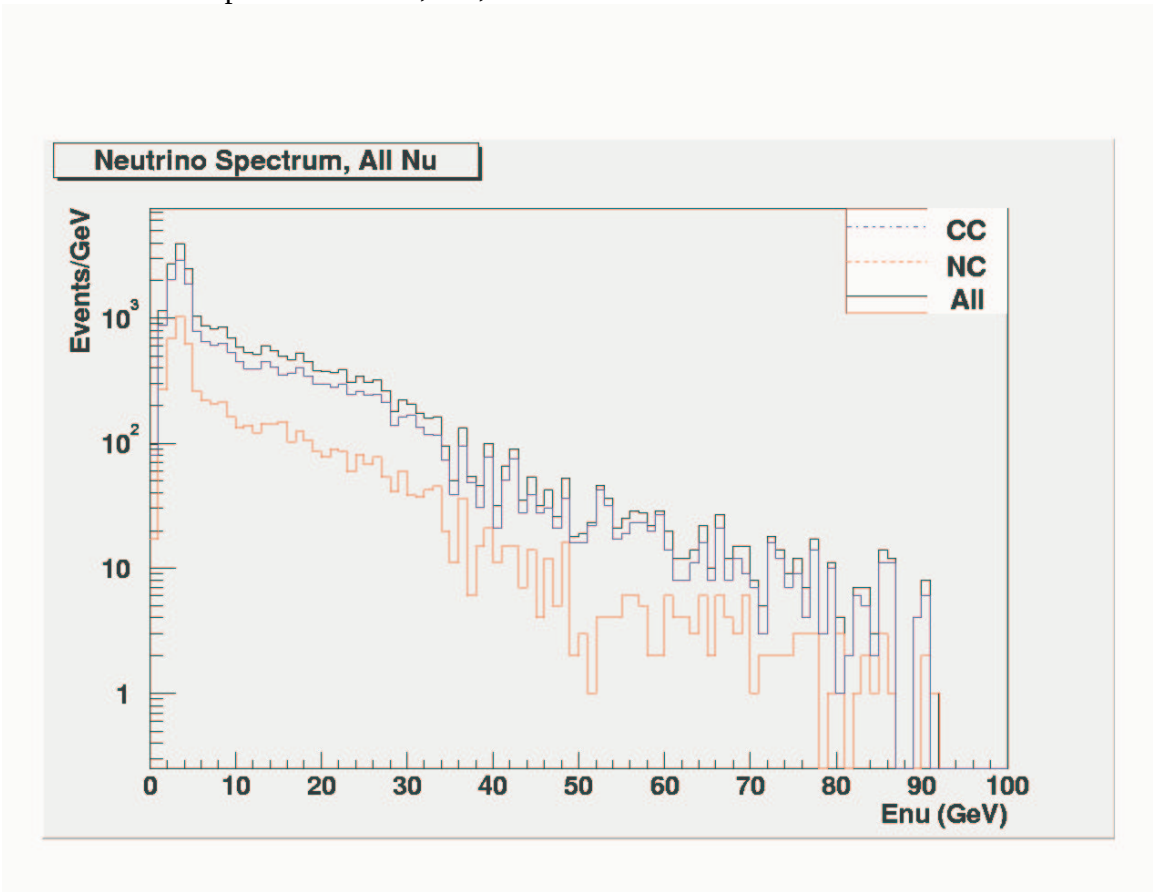
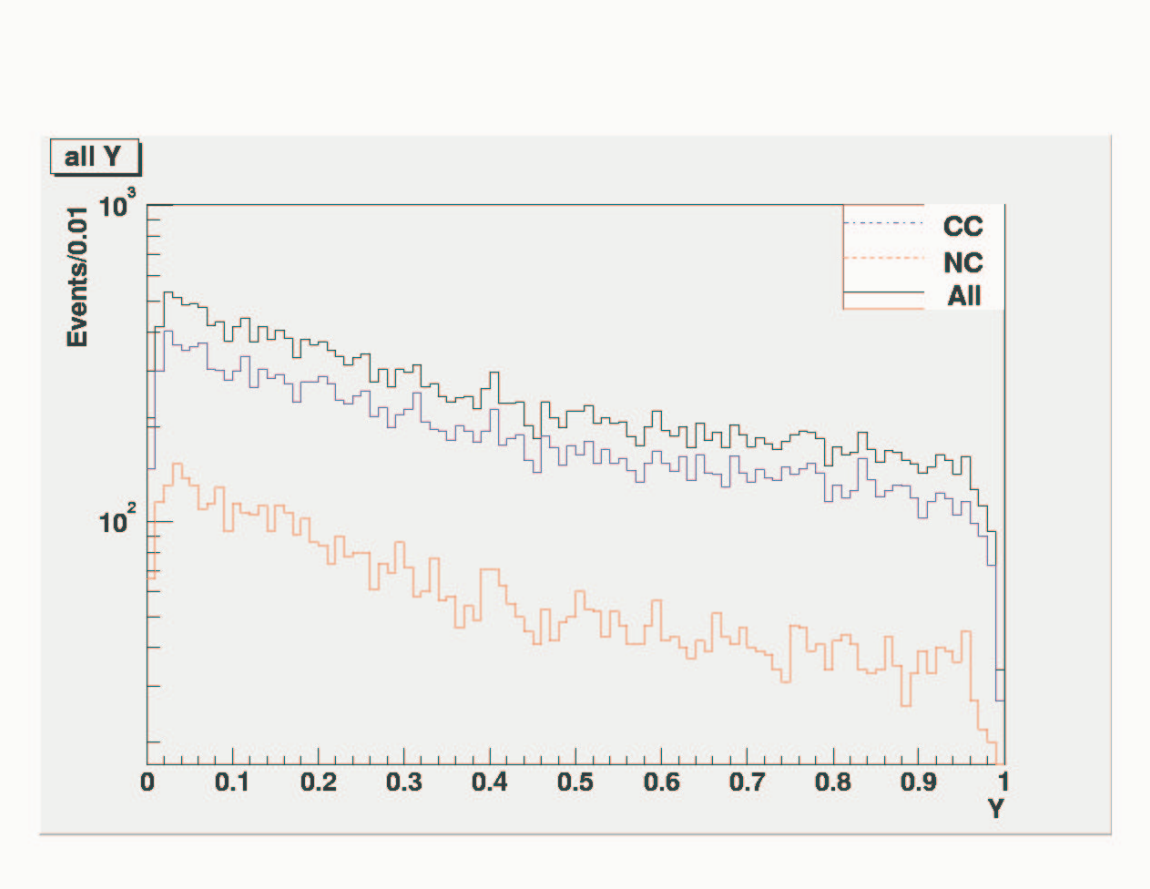
Steve Kahn 14 Jan 2003

Monte Carlo Sample:

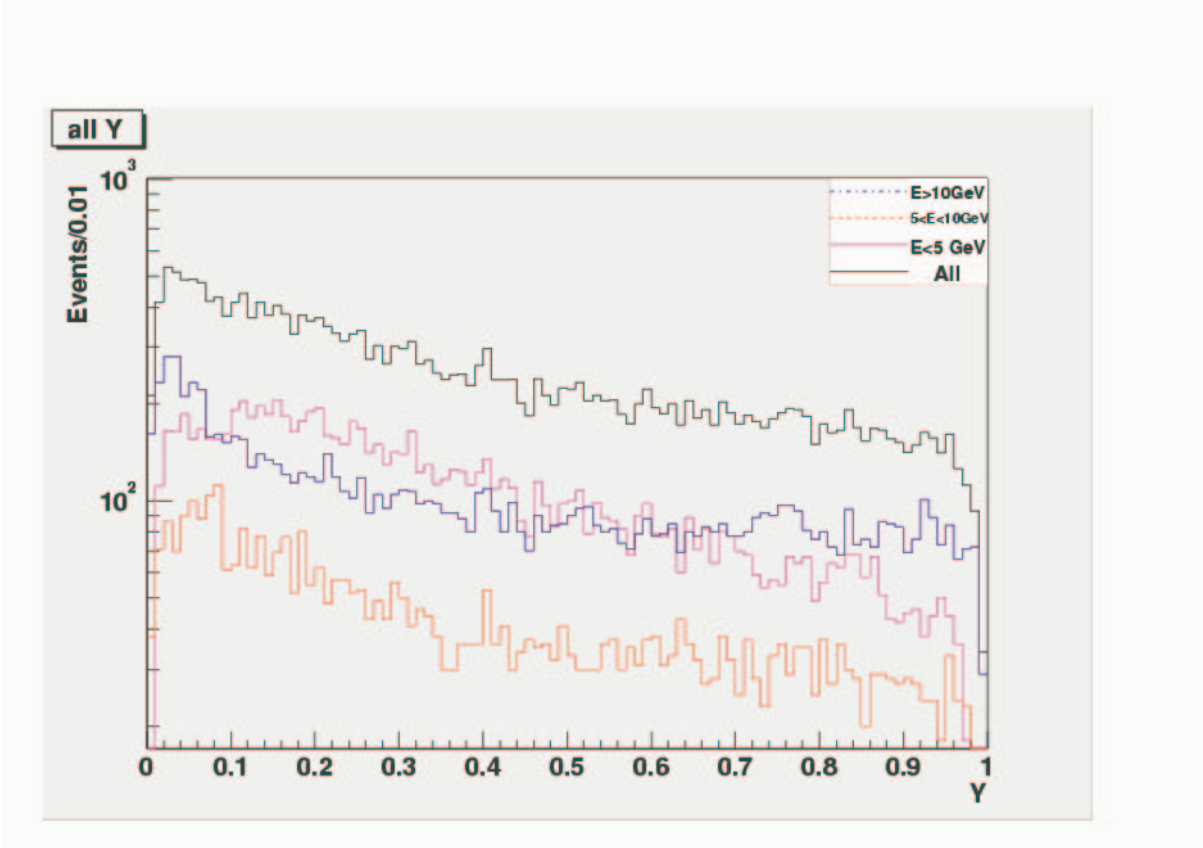
25000 events
6082 Neutral Current Events
18918 Charge Currents Events

Neutrino Event Spectrum for *All, CC, NC* events:



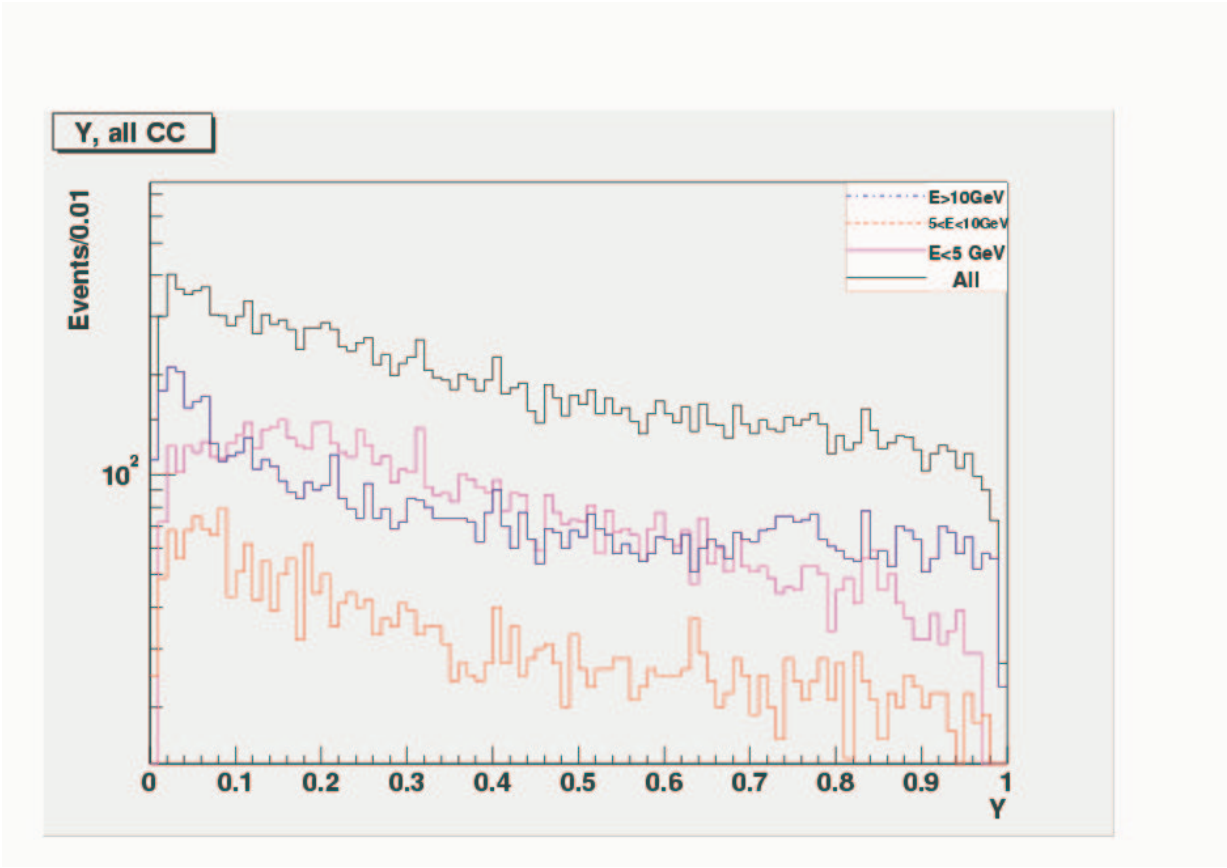



$Y=E_{had}/E_{nu}$ for *All*, *CC*, *NC* events.

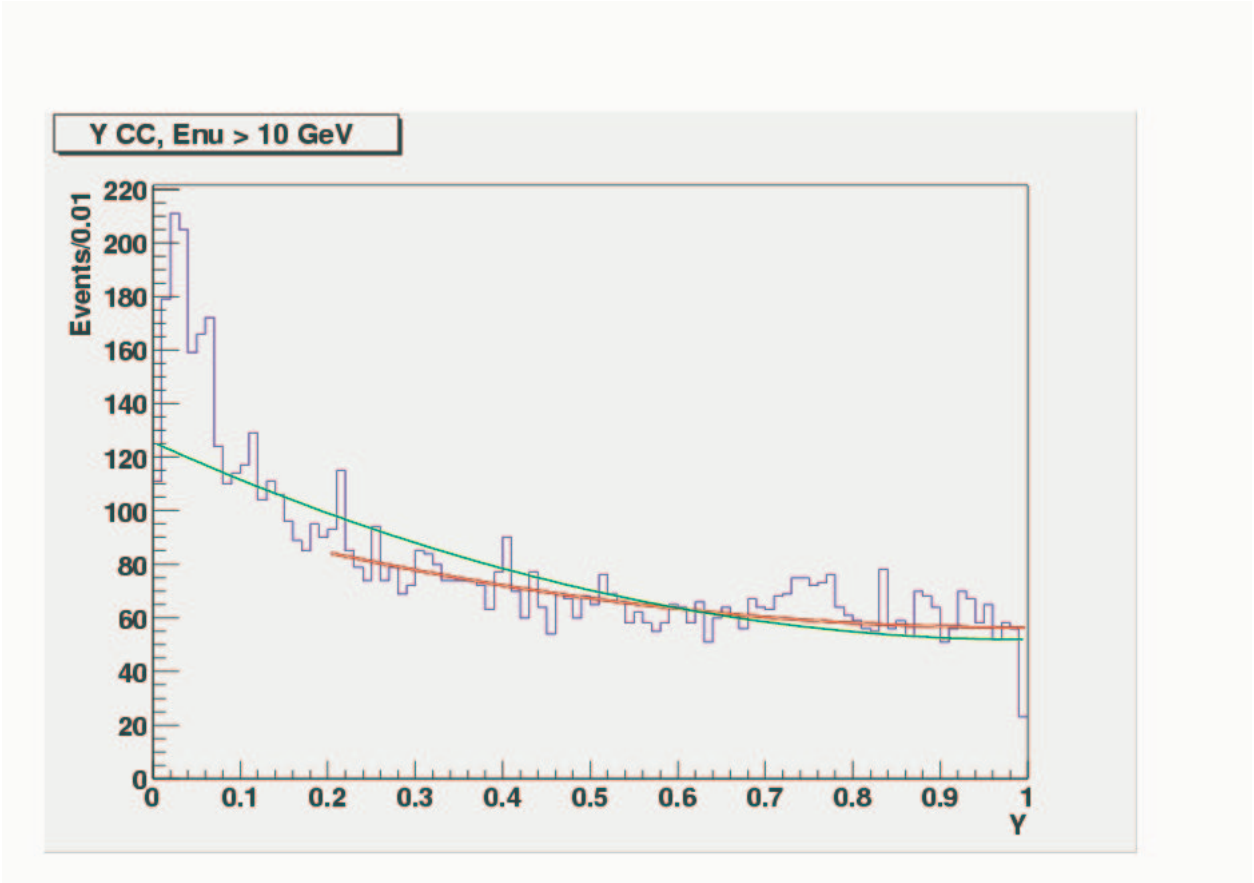



Y distribution for all neutrinos in energy bands:

Note that for $E_\nu$>10 GeV there is an accumulation at low Y. This is hard to imagine if
The y-distribution is of the form $f(y) \sim a + b(1-y)^2$. These are supposed to be Monte Carlo events with no detector effects.

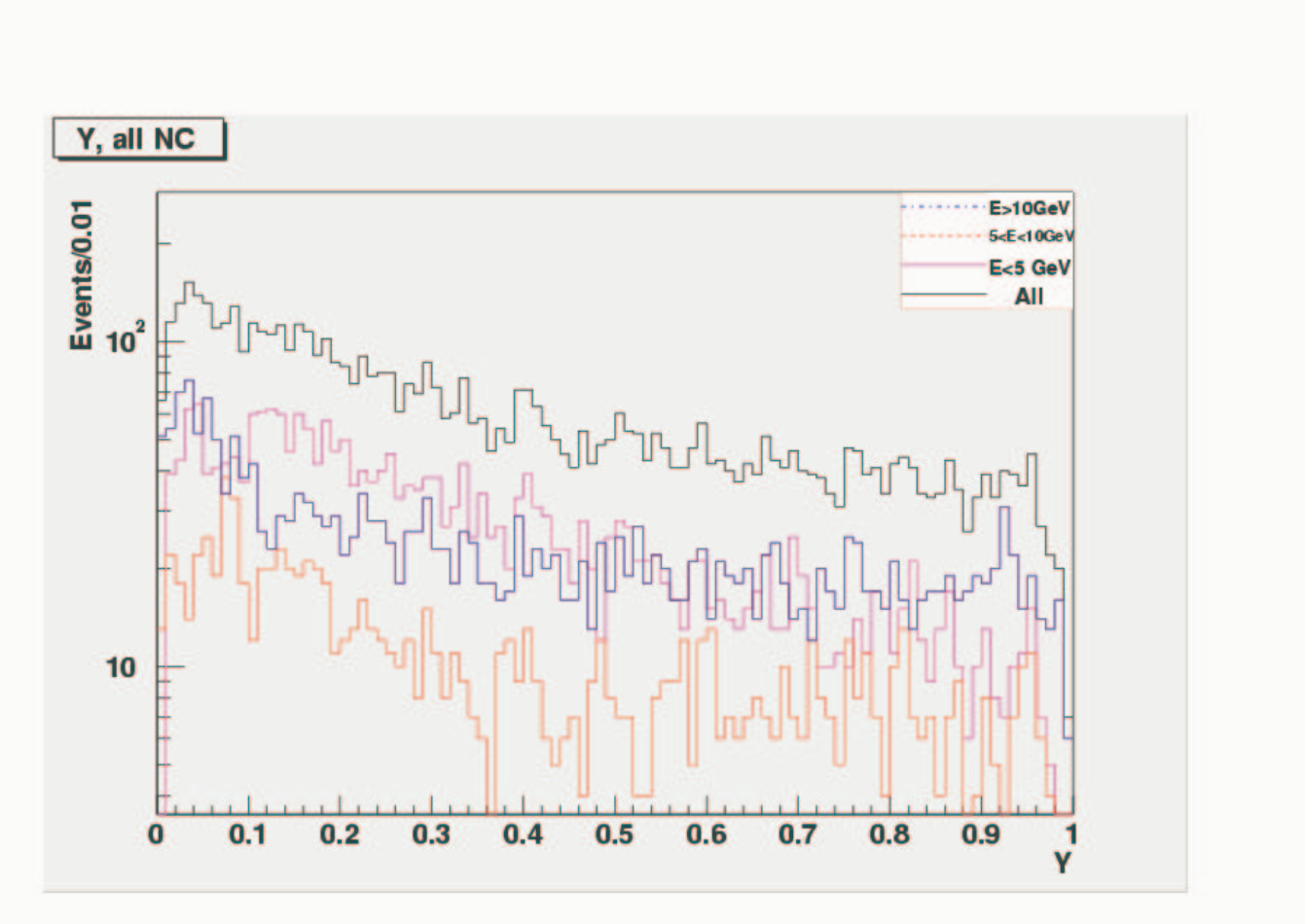



The figure shows the Y distribution for CC events in energy bands. This shows similar peaking at low Y.




This figure shows the CC sample with $E_\nu > 10$ GeV. The curves show fits to $F(y) = a + b(1-y)^2$ over the range $0<y<1$ (not very good) and $0.2<y<1$ (a bit better).
$a=56.4\pm1.3$ and $b=43.8\pm4.4$ for the fit over $0.2\rightarrow1$ (red). Even this represents a substantial "sea" contribution with 24% of events are in $(1-y)^2$ part of distribution. Some of this could be anti-neutrinos.
The peaking at low Y is hard to explain in any case.

The figure shows the Y distribution in energy bands for the NC sample.  It shows a similar effect.



These plots are a result of *DST Dancing* without regards to the *quality of the DST.*
Of the 25000 events: 24926 have a valid fast lepton or neutrino in the *particle #4 location.* (The leading lepton/neutrino is supposed to be in that location). The particle content in that location are
Code 11 : 16915 e-
Code 12 : 5326 nue
Code –11 : 1949 e+
Code –12 : 736 anue
Other : 74 nuclear garbage
CC sample 18918 events

There is an 11% anti-neutrino component to the beam in this sample. This can explain some of the $(1\text{-}y)^2$ contribution.